

Appl. No. 10/6724658
Amdt. Dated March 14, 2008
Reply to Office Action of December 14, 2007

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LISTING OF CLAIMS

1-2. (Canceled)

3. (Currently amended) The assembly of claim [[2]] Z, wherein the permanent magnet body comprises a permanent magnet RMB material, where R comprises at least one rare earth element and M comprises at least one transition metal.

4. (Currently amended) The assembly of claim [[3]] Z, wherein:

the permanent magnet RMB material comprises 13-19 atomic percent R, 4-20 atomic percent B and the balance M, where R comprises 50 atomic percent or greater Pr, 0.1-10 atomic percent of at least one of Ce, Y and La, and the balance Nd, and M comprises Fe; and

the at least one layer of a soft magnetic material comprises a laminate of Fe-Si, Fe-Al, Fe-Co, Fe-Ni, Fe-Al-Si, Fe-Co-V, Fe-Cr-Ni or amorphous Fe- or Co-base alloy layers.

5-6. (Canceled)

7. (Currently amended) The assembly of claim 6, A permanent magnet assembly for an imaging apparatus comprising a permanent magnet body having a first surface and a stepped second surface which is adapted to face an imaging volume of the imaging apparatus, wherein the stepped second surface contains at least four steps, the permanent magnet body comprising:

a cylindrical base section having a major first surface attached to the at least one layer of a soft magnetic material and a major second surface having at least three steps

Appl. No. 10/6724658
Amdt. Dated March 14, 2008
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such that at least two of the steps in the second surface of the base section are machined into the second surface of the base section, wherein the second surface of the base section is opposite to the first surface of the base section, wherein the base section comprises at least two layers of permanent magnet blocks, and wherein the at least one layer of the soft magnetic material is attached to a substantially flat first surface of the permanent magnet body;

a hollow ring section attached to an outer portion of the second surface of the base section, wherein the first and second surfaces of the base section and the first and second surfaces of the hollow ring section are arranged substantially perpendicular to a direction of a magnetic field of the magnet assembly, wherein the stepped second surface of the permanent magnet body comprises the second surface of the hollow ring section and a portion of the second surface of the base section that is not covered by the ring section, and wherein the second surface of the ring section extends at least 0.05 meters above an outer step on the second surface of the base section to form a pocket.

8. (Original) The assembly of claim 7, further comprising metal shims located in the pocket.

9. (Original) The assembly of claim 7, wherein a height of the at least three steps in the base section is less than 0.03 meters.

10. (Currently amended) A permanent magnet assembly for an imaging apparatus comprising a permanent magnet body having a first surface and a stepped second surface which is adapted to face an imaging volume of the imaging apparatus, wherein the stepped second surface contains at least four steps, wherein ~~The assembly of claim~~

Appl. No. 10/6724658
Amdt. Dated March 14, 2008
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~~1, further comprising~~ a movable permanent magnet body ~~[[which]]~~ is movable with respect to the second surface of permanent magnet body.

11. (Currently amended) The assembly of claim ~~[[1]]~~ 10, wherein a central step of the stepped second surface comprises a protrusion.

12-36. (Canceled)

37. (Currently Amended) The assembly of claim ~~[[36]]~~ 40, wherein:

the permanent magnet body comprises a permanent magnet RMB material, where R comprises at least one rare earth element and M comprises at least one transition metal;

the permanent magnet RMB material comprises 13-19 atomic percent R, 4-20 atomic percent B and the balance M, where R comprises 50 atomic percent or greater Pr, 0.1-10 atomic percent of at least one of Ce, Y and La, and the balance Nd, and M comprises Fe; and

the at least one layer of a soft magnetic material comprises a laminate of Fe-Si, Fe-Al, Fe-Co, Fe-Ni, Fe-Al-Si, Fe-Co-V, Fe-Cr-Ni or amorphous Fe- or Co-base alloy layers.

38-39. (Canceled)

40. (Currently Amended) ~~The assembly of claim 39, wherein:~~ A permanent magnet assembly for an imaging apparatus comprising a permanent magnet body having a first

Appl. No. 10/6724658
Amdt. Dated March 14, 2008
Reply to Office Action of December 14, 2007

surface and a stepped second surface which is adapted to face an imaging volume of the imaging apparatus, wherein a central step of the stepped second surface comprises a protrusion, the permanent magnet body comprising:

a cylindrical base section having a major first surface attached to the at least one layer of a soft magnetic material and a major second surface having at least three steps such that at least two of the steps in the second surface of the base section are machined into the second surface of the base section, wherein the second surface of the base section is opposite to the first surface of the base section, wherein the base section comprises at least two layers of permanent magnet blocks, and wherein the at least one layer of the soft magnetic material is attached to a substantially flat first surface of the permanent magnet body;

a hollow ring section attached to an outer portion of the second surface of the base section, wherein the first and second surfaces of the base section and the first and second surfaces of the hollow ring section are arranged substantially perpendicular to a direction of a magnetic field of the magnet assembly, wherein the stepped second surface of the permanent magnet body comprises the second surface of the hollow ring section and a portion of the second surface of the base section that is not covered by the ring section, and wherein:

the second surface of the ring section extends at least 0.05 meters above an outer step on the second surface of the base section to form a pocket; and

a height of the at least three steps in the base section is less than 0.03 meters.

41. (Original) The assembly of claim 40, further comprising metal shims located in the pocket.

42. (Original) The assembly of claim 40, wherein:

Appl. No. 10/6724658
Amdt. Dated March 14, 2008
Reply to Office Action of December 14, 2007

the stepped second surface comprises a plurality of rings;

the central step comprises a solid central ring;

outer steps comprise a plurality of hollow rings; and

the solid central ring has a height that is greater than a height of a first hollow ring adjacent to the solid central ring, but less than a height of other plurality of hollow rings.

43 (Currently amended) ~~The assembly of claim 35, further comprising~~ A permanent magnet assembly for an imaging apparatus comprising a permanent magnet body having a first surface and a stepped second surface which is adapted to face an imaging volume of the imaging apparatus, wherein a central step of the stepped second surface comprises a protrusion, and wherein a movable permanent magnet body [[which]] is movable with respect to the second surface of the permanent magnet body.

44 (Currently amended) The assembly of claim [[35]] 43, wherein the movable permanent magnet body is located in an opening extending from the first surface of the permanent magnet body partially through the permanent magnet body.

45. (Canceled)